

Notice of Allowability

Application No.

09/624,106

Examiner

Samuel Broda

Applicant(s)

BUTTOLO ET AL.

Art Unit

2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicants' Preliminary Amendment mailed on 19 October 2004.
2. ☒ The allowed claim(s) is/are 1,2,4 and 6-13.
3. ☒ The drawings filed on 24 July 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |



**SAMUEL BRODA, ESQ.
PRIMARY EXAMINER**

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1. This communication is in response to Applicants' Preliminary Amendment mailed on 19 October 2004 as part of a Request for Continued Examination. Claims 1 and 10 were amended; claim 5 was canceled; claim 13 was added. Claims 1-2, 4 and 6-13 are pending.

Reasons for Allowance

2. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

The closest prior art of record shows:

(1) a method for reconstructing topological information for a mesh, the mesh comprising a polygonal soup of triangles with sides and vertices (Schroeder et al, "Decimation of Triangle Meshes");

(2) a method of defining a neighborhood of vertices in a 3D surface mesh (Junkins, U.S. Patent 6,606,584); and

(3) an overview of geometry and surface simplification (Gran, "Octree-based Simplification of Polyhedral Solids").

2.1 Applicants' first set of claims consists of claims 1-2, 4, and 6-12.

Independent claim 1 is directed to a computer-implemented method for reconstructing topological information for a mesh for use in interactive simulation with complex vehicle models; independent claim 10 is directed to a computer-implemented method for fixing holes in

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topological information for a mesh for use in interactive simulations. Each claim identifies the distinct combination of steps of: “removing said duplicates of vertices,” “splitting at least one triangle into at least two new elements,” and “realigning strips of triangles without common vertices.”

Because the closest prior art does not appear to teach or suggest the splitting of triangles and adding new elements to create more detail, claims 1-2, 4, and 6-12 are deemed allowable.

2.2 Applicants’ second set of claims consists of claim 13.

Independent claim 13 is directed to a computer-implemented method for fixing holes in topological information for a mesh for use in interactive simulations. This claim identifies the distinct combination of steps of: “adding triangles connected to the duplicate vertices to said original vertices,” “rebuilding said edge-neighbor table for all triangles connected to said original vertices,” and “realigning strips of triangles without common vertices.”

Because the closest prior art does not appear to teach or suggest the splitting of triangles and adding new elements to create more detail, claim 13 is deemed allowable.

3. Any comments considered necessary by Applicants must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

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4. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Samuel Broda, whose telephone number is (571) 272-3709. The Examiner can normally be reached on Mondays through Fridays from 8:00 AM – 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kevin Teska can be reached at (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist, whose telephone number is (571) 272-2100.



**SAMUEL BRODA, ESQ.
PRIMARY EXAMINER**